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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/481,396	01/12/2000	Koichiro Tanaka	0756-2092	5586

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NIXON PEABODY, LLP  
8180 GREENSBORO DRIVE  
SUITE 800  
MCLEAN, VA 22102

EXAMINER

RODRIGUEZ, ARMANDO

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 09/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/481,396

Applicant(s)

TANAKA, KOICHIRO

Examiner

Armando Rodriguez

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.


- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

  
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TECHNOLOGY CENTER 2800

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 27. 6) ☐ Other: .

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jain (PN 5,059,013) in view of Yamazaki et al (PN 6,353,218) and Shiraishi et al (PN 6,100,961).

Regarding claims 1,4,7-12,17-19,27-29,31-33.

In figure 1A Jain illustrates an illumination system, which produces a laser beam having uniform intensity and a selected cross-section shape. The shape of the beam is obtained by having a slit (14) between the excimer laser (10) and the cylindrical lens (20) and placing a slit (26) after cylindrical lens (22).

Jain does not disclose having an optical system for dividing and combining the laser beam.

In figure 9 Yamazaki et al illustrates a beam shaping optical system of an illumination system, which produces a laser beam of uniform intensity for irradiating a large area. The beam shaping optical system of figure 9 includes a group of convex lenses and a slit to obtain a rectangular shape beam, as described in columns 4,11 and 13. Figure 7 illustrates the complete illumination system, which includes a stage for placing the substrate.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to place the slit of Jain between the excimer laser and the lens of Yamazaki et al because it would provide a rectangular shaped beam for irradiating a large area of a substrate with a uniform intensity beam.

Regarding claims 2,5,21,22.

In figure 1A Jain illustrates an illumination system, which produces a laser beam having uniform intensity and a selected cross-section shape. The shape of the beam is obtained by placing a slit (14) between the excimer laser (10) and the cylindrical lens (20) and placing a slit (26) after cylindrical lens (22), where slit (14) illustrates a width narrower than the maximum width of the beam.

Jain does not disclose having an optical system for dividing and combining the laser beam.

In figure 9 Yamazaki et al illustrates a beam shaping optical system of an illumination system, which produces a laser beam of uniform intensity for irradiating a large area. The beam shaping optical system of figure 9 includes a group of convex lenses and a slit to obtain a rectangular shape beam, as described in columns 4,11 and 13. Figure 7 illustrates the complete illumination system, which includes a stage for placing the substrate.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to place the slit of Jain between the excimer laser and the lens of Yamazaki et al because it would provide a beam to cylindrical lens group having a narrower width than the maximum width of the beam before being

incident on the cylindrical lenses thereby obtaining a rectangular shaped beam for irradiating a large area of a substrate with a uniform beam intensity.

Regarding claims 3,6,13-16,24,25,35,36.

In figure 1A Jain illustrates an illumination system, which produces a laser beam having uniform intensity and a selected cross-section shape. The shape of the beam is obtained by placing a slit (14) between the excimer laser (10) and the cylindrical lens (20) and placing a slit (26) after cylindrical lens (22), where slit (14) shields a portion of the lens from the incident beam.

Jain does not disclose having an optical system for dividing and combining the laser beam.

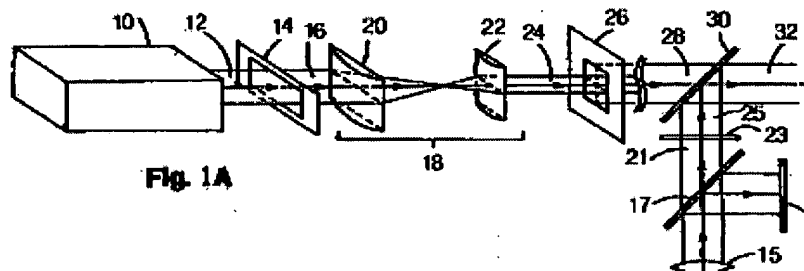
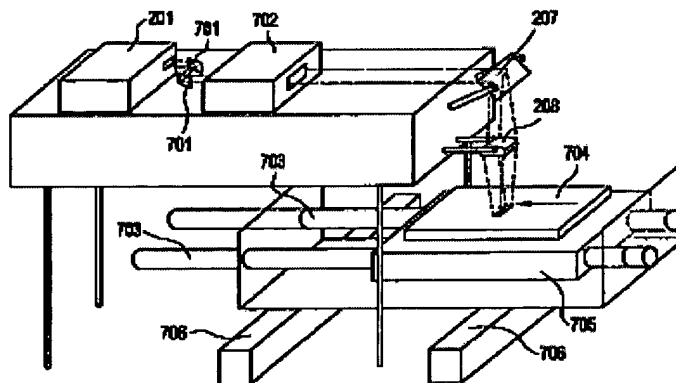
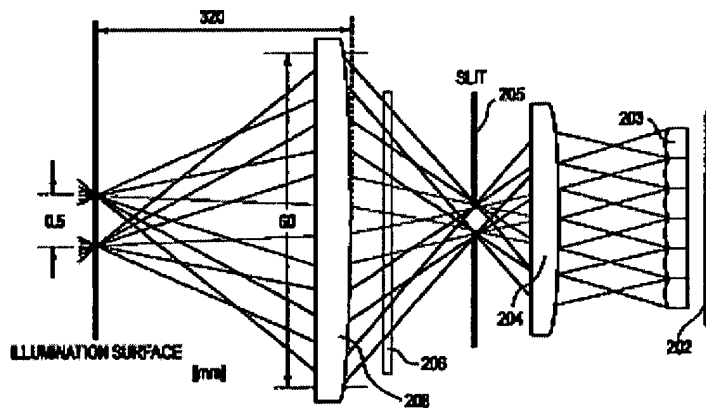
In figure 9 Yamazaki et al illustrates a beam shaping optical system of an illumination system, which produces a laser beam of uniform intensity for irradiating a large area. The beam shaping optical system of figure 9 includes a group of convex lenses and a slit to obtain a rectangular shape beam, as described in columns 4,11 and 13. Figure 7 illustrates the complete illumination system, which includes a stage for placing the substrate.

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to place the slit of Jain between the excimer laser and the lens of Yamazaki et al because it would provide a shielded cylindrical lens from the incident beam and obtaining a rectangular shaped beam for irradiating a large area of a substrate with a uniform beam intensity.

Regarding claims 20,23,26,30,34 and 37.

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It is well known in the art to use an excimer laser or a YAG laser, which provides a harmonic wave for irradiating a substrate, as, disclosed in column 26 of Shirashi et al.


**Fig. 1A****FIG. 7****FIG. 9**

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Armando Rodriguez whose telephone number is (703) 308-6218. The examiner can normally be reached on 10-hour day / M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Ip can be reached on (703) 308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-4881.

  
Armando Rodriguez  
Examiner  
Art Unit 2828

  
Paul Ip  
Supervisor  
Art Unit 2828

AR/PI  
September 19, 2002